CLAIMS

1. (currently amended) A method for code-tracking in a CDMA communication system, the method comprising:

(a) receiving an electromagnetic signal comprising a superposition of a plurality of signal components of different signal paths corresponding to a transmitted user signal that was spread with a code sequence,

(b) digitizing a signal derived from the electromagnetic signal,

(c) distributing the digitised signal to a plurality of receiver fingers of a rake receiver, each finger being assigned to a different one of the signal paths,

(d) distributing the digitised signal in each finger to a detection branch and a synchronizing branch,

(e) decorrelating at least one signal derived from the digitised signal in a first finger of the rake receiver corresponding to a first signal path using the code sequence in the synchronizing branch to generate ~~a first decorrelated~~ an intermediate signal for the first signal path corresponding to the first finger, and

(f) reducing the interference of at least one other signal component of at least one other signal path corresponding to at least one other finger of the rake receiver with the signal component of the first signal path corresponding to the first finger by:

calculating the interference contribution of the at least one other finger in the first finger; and

subtracting, for the first signal path, the interference contribution of the at least one other finger from [[an]] the intermediate signal ~~based on the first decorrelated signal~~ to produce an interference reduced signal.

2. (previously presented) A method according to claim 1, wherein step (f) further comprises the steps of:

storing an S-curve for the CDMA communication system in an interference computation module; and

calculating the interference contribution of the at least one other finger in the first finger by multiplying a total weight of an interfering path corresponding to the at least one other finger by the S-curve at an estimated correct location.

3. (previously presented) A method according to claim 1 wherein the subtracting takes place on symbol rate (1/T).

4. (previously presented) A method according to claim 1, wherein interference of other signal components than the first signal component is reduced in all of the receiver fingers.

5. (currently amended) A method according to claim 1, wherein:

the code sequence is a complex-conjugate pseudo-noise code sequence; and

step e) comprises decorrelating the ~~digitised~~ <u>at least one</u> signal by multiplying the ~~digitised~~ <u>at least one</u> signal with the complex-conjugate pseudo-noise code sequence.

6. (canceled)

7. (previously presented) A method according to claim 1, comprising determining after step f) the real part of the interference reduced signal.

8. (currently amended) A method according to claim 1 comprising determining before step f) the real part of the ~~interference reduced~~ <u>intermediate</u> signal<u>, wherein the interference contribution is subtracted from the real part of the intermediate signal to produce the interference reduced signal</u>.

9. (previously presented) A method according to claim 1, comprising filtering after step f) the interference reduced signal.

10. (previously presented) A method according claim 9, wherein steps e), f) and the filtering step provide code-tracking of the digitised signal.

11. (previously presented) A method according to claim 10, wherein the code-tracking provides an estimated timing delay of the signal component of the first signal path.

12. (previously presented) A method according to claim 1 wherein step e) comprises distributing the digitised signal to a first and second correlator.

13. (currently amended) A method according claim 12, comprising time-shifting the digitised signal prior to feeding it to the second correlator providing late and early estimates as output of

the first and second correlators respectively~~, wherein one of the late and early estimates is the first decorrelated signal~~.

14. (previously presented) A method according to claim 13, comprising subtracting the early and late estimates yielding a difference signal.

15. (previously presented) A method according to claim 14, comprising multiplying the difference signal with reconstructed transmitted symbols to generate the intermediate signal.

16. (canceled)

17. (previously presented) A rake receiver according claim 26, wherein the interference reduction device comprises an interference computation module being adapted to receive complex path weights and path delays to compute the interference contribution of the at least one other signal component with the said signal component of the first signal path.

18. (canceled)

19. (previously presented) A rake receiver according to claim 26, comprising an A/D-converter upstream of the receiver fingers, for digitizing the signal derived from the electromagnetic signal.

20. (previously presented) A rake receiver according to claim 26, wherein the timing error detector is an early-late gate timing error detector further comprising a second correlator adapted to decorrelate another version of the digitized signal to generate a second decorrelated signal, wherein the intermediate signal is generated based on the two decorrelated signals.

21-23. (canceled)

24. (previously presented) A rake receiver according to claim 26, wherein the timing error detector is adapted to provide pseudo-noise decorrelation.

25. (previously presented) A rake receiver according to claim 26, wherein the rake receiver is adapted for direct-sequence code-division multiple access communication.

26. (currently amended) A rake receiver for processing a digitized signal corresponding to a received electromagnetic signal comprising a superposition of a plurality of signal components of different signal paths corresponding to a transmitted user signal that was spread with a code sequence, the rake receiver comprising a plurality of fingers, wherein a first finger is adapted to process a signal component corresponding to a first signal path, wherein the first finger comprises:

a detection path adapted to receive and process a first version of the digitized signal; and

a code-tracking loop adapted to receive and process a second version of the digitized signal to determine a path delay error for the signal component corresponding to the first signal path, wherein the code-tracking loop comprises:

a timing error detector adapted to generate error signals based on the second version of the digitized signal; and

a loop filter adapted to filter the error signals from the timing error detector to generate the path delay error, wherein the timing error detector comprises:

a correlator adapted to decorrelate at least one signal derived from the second version of the digitized signal using the code sequence to generate ~~a decorrelated~~ an intermediate signal;

an interference reduction device adapted to reduce the interference of at least one other signal component of at least one other signal path corresponding to at least one other finger of the rake receiver with the signal component of the first signal path corresponding to the first finger by:

calculating the interference contribution of the at least one other finger in the first finger; and

subtracting, for the first signal path, the interference contribution of the at least one other finger from [[an]] the intermediate signal based on the first decorrelated signal.

27. (previously presented) A rake receiver according to claim 26, wherein the interference reduction device is adapted to:

store an S-curve for a CDMA communication system; and

calculate the interference contribution of the at least one other finger in the first finger by multiplying a total weight of an interfering path corresponding to the at least one other finger by the S-curve at an estimated correct location.

28. (previously presented) A method according claim 1, wherein step (f) comprises using complex path weights and path delays to compute the interference contribution of the at least one other signal component with the signal component of the first signal path.

29. (currently amended) Apparatus for code-tracking in a CDMA communication system, the apparatus comprising:

means for receiving an electromagnetic signal comprising a superposition of a plurality of signal components of different signal paths corresponding to a transmitted user signal that was spread with a code sequence;

means for digitizing a signal derived from the electromagnetic signal;

means for distributing the digitised signal to a plurality of receiver fingers of a rake receiver, each finger being assigned to a different one of the signal paths;

means for distributing the digitised signal in each finger to a detection branch and a synchronizing branch;

means for decorrelating <u>at least one signal derived from</u> the digitised signal in a first finger of the rake receiver corresponding to a first signal path using the code sequence (112) in the synchronizing branch to generate ~~a first decorrelated~~ <u>an intermediate</u> signal for the first signal path corresponding to the first finger, and

means for reducing the interference of at least one other signal component of at least one other signal path corresponding to at least one other finger of the rake receiver with the signal component of the first signal path corresponding to the first finger by:

calculating the interference contribution of the at least one other finger in the first finger; and

subtracting, for the first signal path, the interference contribution of the at least one other finger from [[an]] <u>the</u> intermediate signal ~~based on the first decorrelated signal~~.

30. (previously presented) An apparatus according to claim 29, wherein the means for reducing interference comprises:

means for storing an S-curve for the CDMA communication system in an interference computation module; and

means for calculating the interference contribution of the at least one other finger in the first finger by multiplying a total weight of an interfering path corresponding to the at least one other finger by the S-curve at an estimated correct location.

31. (previously presented) An apparatus according claim 29, wherein the means for reducing interference comprises means for using complex path weights and path delays to compute the interference contribution of the at least one other signal component with the signal component of the first signal path.